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EDITORIAL

ETHICAL BASIS OF HEALTH

THE Sanskrit equivalent of the word health, "*swasthyam*", denotes that health means to remain in one's own self. Man is said to remain in himself so long as he lives a natural life. The moment he turns to unnatural methods, he at once begins to remain out of the way and so, is not at ease with himself. This out-of-the-way mode of life is '*disease*, whereas living a natural life is *ease*.

That disease is unnatural is well-known. It is a state where a man is forced to live an unnatural and so, an undesirable life. This is so, because he must have voluntarily taken to unnatural modes of life previously.

The question 'what is a natural mode of life?' though apparently controversial, is a settled one. For, every one finds faults with the lives of others, which indicates the common sense of the public in regard to natural modes of life. Even a drunkard does not like to see his own son drinking, nor does he like himself to be called a drunkard. No professional cheat wants himself or his wife and children to be cheated by others. All this clearly points out to the well-known maxim that what others should not do to us should not be done to others by us. He who violates this law has done an unnatural act, and his *disease* has begun. This is the root cause of all diseases, excepting accidental ones such as caused by falls and poisons.

This psychic, or say, ethical basis of diseases is not a newly found fact. That worry causes a rush of acids to the stomach, and fear and anger put a stop to digestion for the time being has become the part and parcel of our common sense. Every wilful violation of natural laws leaves behind itself an impression of regret that it was done. But the past is past, and it must bear its own fruit in the form of a reaction, not only from the outside world, but from within as well. Time factor is indispensable between causes and effects. It may be also difficult to say which effect was caused by which cause. Millions of seeds sown

in August grow into as many full-grown crops in January, after the lapse of 5 or 6 months. And it is very difficult to say which seeds brought forth which plants. The seeds are so numerous and scattered so indiscriminately that it makes it impossible to establish the exact causes of the plants. Similarly, violations of natural laws in youth and childhood are, generally so many and so indiscriminate that the crops, the violators reap in their middle and old ages, are too heavy to be borne. While the external victims of bad actions wait for vengeance, the corresponding bad impressions in our minds are on their way to grow into full grown plants in the form of acute diseases.

The same rule, in general, may be applied to good actions or faithful obedience to natural laws. But for the presence of some good actions and their good consequences, the average life of a man would have been half as much cut short as it is now. Just as bad actions impair our health, good ones repair it. Therefore, good actions may be used both for prevention as well as cure of diseases.

Since actions are no actions without wilfulness behind them, the first thing every one should do is to cultivate goodwill towards others so that he may not himself be attacked by a disease. For, entertainment of ill-will is itself a disease just like poison in blood The eradication of ill-will cannot be achieved without substituting it with good will. For, mind cannot be blank and absolutely neutral except in a dreamless sleep. Mind cannot exist without occupation and every occupation of it is qualified with a goodwill or a bad will. Hence, it is dangerous to let it have its own course. It must be taught to think of good to others. Then and then only, the thinker remains healthy. When this is the case with the mere entertainment of will, what to talk of the results it can produce when wilfully transformed into actions! In this connection, it must be noted that it is much easier to invite good thoughts than to dismiss evil ones. Since man is by nature capable of both good and evil thinking, total eradication of one or the other is a myth. What we should do then is to make the best use of the rise of any evil thought or an evil act done already, by subjecting it to scrutiny, and introspection, which is in itself a good action.

The goodness or badness of an action is already defined in terms of obedience or disobedience to the laws of Nature. But another definition is that actions involving or resulting in control over one's own body and mind are good, and those involving or resulting in loss of self control are bad. And to put it in terms of health and disease, it means that actions resulting in health, *i.e.* control over body and mind, are good and those that result in disease are bad. That is why the ancient physicians included anger, fear, envy, passion and greed in diseases, as all these involve loss of self-control. Alcohol is denounced because it deprives one of his control over himself. A disease is a disease because it is a state of loss of self-control.

Self-control should be, therefore, cultivated from birth till death, from the moment we wake up till the moment we go to sleep, relentlessly and wilfully. In fact, self-control must be the only habit that man must cultivate. It prevents diseases, it cures diseases, and there is nothing that it cannot do.

But, self-control should not be understood as self-destruction. Just as a rider controls his horse, we should control our bodies and souls. While doing so, care must be taken that the horse we ride on should not die. Self-control therefore, does not mean willful suppression of calls of Nature, non-response to hunger and thirst for a long time. Such unnatural acts kill body and mind and leave us in wilderness.

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Hence, it comes to this that we have to answer the calls from the body, but not all calls from the mind direct. Hunger, for instance, is a call from the body and so, we cannot altogether ignore it. But a passion of love arising for a beautiful girl or of hatred towards an enemy, springing up in our hearts, must be immediately and thoughtlessly suppressed not by merely resolving to do so, but by actually enforcing the reslove by taking some practical steps, such as walking away from the object of the passion. An animal would not be able to do so. Animals have no option to do good or evil. Hence they have no independence. But man is independent and free to do good or bad. A pity for those who plead inability to suppress evil passions and abstain from such actions. But they are far better than those perverted minds who defend their slavery to body and mind, than which nothing is farther from humanity. A man without self-control is but an animal. *Man* may be defined as an animal with self-control. This is his nature. The Law of Nature requires him to practise self-control in order to remain a *man.* Any violation of it causes an unnatural state called disease.

The basis of all diseases is, therefore, previous loss of self-control. In order to prevent and cure diseases, self-control must be practised. Self-control is an art in itself. It must be studied from others by precept, by example and by self-thinking. The traditional customs and habits of India are an endless store of information and examples of practice of self-control. One has only to be enthusiastic over knowing it, and he will know it before long.

COMMUNITY HYGIENE •

• *By* DR. K. L. NARAYANA RAO, M.B., B.S., *Madras.*

IN the Editorial of July '41 issue of *Health*, stress was laid on the importance of personal hygiene which is but an aspect of public health, and this time, I wish to emphasize another aspect, namely, community hygiene ; for, neither of the two is of much value without the other.

The health of an individual and that of the community at large are interdependent,and it is in the interests of every one to see that the community follows the rules of public health and hygiene. All of us know how plague and small-pox once raged in London with a disastrous mortality rate. But, now the Western countries are completely free from most of the infectious diseases such as those mentioned above as well as typhoid, dysentery, cholera etc. But in India, epidemics of these diseases are almost of every-day occurrence,while typhoid is endemic all over India. That these communicable diseases are completely preventable is proved by the state of health now obtained in the Western countries.

The reason is that the people of the West were regularly educated and trained up by their Governments in the principles and practice of public health and hygiene. Regular health programmes were carried out under the direct patronisation of their national Governments. But in India, such an education is still conspicuous by its absence. It is only the late Congress Government that took the trouble of enacting the New Public Health Act, but unfortunately, it did not remain in office long enough to see it enforced. It is true that no people can progress, all by themselves, without the aid of state legislation. And yet, to a great extent, it depends

upon the public also to learn, through Press and Platform, the principles of Community Hygeine, and practise them as far as possible. A few points of importance in Community Hygiene, are therefore given here.

It is needless to say, that since we cannot live but in a community, any change in its general health is bound to affect individuals and families. The out-break of plague, for instance,in a part of a village or town cannot be overlooked as a mere local incident. It is the concern of the community to see that epidemics do not visit their places, and this can only be done by keeping their villages and towns absolutely clean and sanitary.

Just as a house is the dwelling place of a family, a village or a town is that of a community. It goes without saying, therefore, that dirt and filth inside the town should not be tolerated just as it cannot be tolerated in front of a bed-room. For, it is dirt and filth that form the breeding place of all disease germs and the abode of millions of mosquitoes and flies. These germs and insects are the carriers of germs of infectious diseases. Mosquitoes carry germs of Malaria, and flies contaminate food and drinking water with disease germs. All the refuse of the houses must be consigned into the dust-bin, and not thrown away indiscriminately. If a neighbour does so, it does not follow that another too must or may do the same thing. On the other hand, instead of blindly imitating the bad example of the erring neighbour, one can very well attempt to reform him by setting up a good example himself.

All the refuse and rubbish of the houses must be carefully consigned into the dust-bin, and not thrown away indiscriminately

The health of one in a community is as much the health of another. It is known to everybody that by far the most dangerous source of disease is the diseased individual himself. Millions of germs are conveyed by means of flies, air, water, or food to healthy individuals, who fall a prey to it. All this misery can be avoided if we only follow some rules of public health. All the excreta of the infected person must be disinfected and properly disposed off and should not be thrown helter - skelter in the streets or other open places. Spitting and passing of motion or urine in the street must be strenuously avoided. Passing of motion and urine by the children in the streets and lanes of villages and towns is an everyday occurrence. Children, too, may be as much a source of infection as adults. Educated individuals must see, therefore, that such things do not take place in front of their houses, and induce their neighbours to do the same.

Nor is the subject of community hygiene a new thing to us. From time immemorial, Health and Hygiene have been kept in highest esteem in India. As a matter of fact, all the ancient Hindu rites and rituals are now being proved, in the light of modern science, to have been based on perfectly scientific and hygienic backgrounds. But unfortunately, these wholesome observances are now-a-days fast going

into disuse and decay, especially in cities and towns. Nevertheless, in villages it still forms part of the daily routine of an orthodox Hindu housewife to sweep away, the first thing in the

Using old, fermenting cowdung full of worms, for the floor, is, however, insanitary.

morning, all the filth and dirt in the surroundings of her house, and to copiously sprinkle water diluted with cow-dung all over the ground. The importance of this powerful antiseptic, *viz.*, the cow-dung lotion, in maintaining community hygiene is really astonishing. For, scientific researches have proved that pure cow-dung contains in it the properties of developing and spreading bacteriophage which kills the disease germs. The use of cow-dung, therefore, must be encouraged also in the cities by the educated population. While cleanliness of streets is only a negative step in community hygiene, washing them with dung-water is a positive one, killing such of the disease germs as might remain even after cleaning.

While these steps are indeed powerful in preventing epidemics and must therefore, form the daily routine of people, there are, however, some special and extraordinary steps that have to be taken when, in spite of such preventive measures, epidemics do actually break out. These emergency measures might differ according to the nature and virulence of the epidemics. All the same, what the people have to do in the face of such common calamities is to co-operate with the local Government by promptly and scrupulously following the instructions that might be provisionally issued in respect of epidemics.

Purification of Water in War Time

" Dissolve 3 ounces of crystalline sodium carbonate in 5 fluid ounces of water. Triturate 2 ounces of bleaching powder with 15 fluid ounces of water. Mix the two liquids and allow to stand, with an occasional shake, for three or four hours. Filter and dilute the filtrate to 50 fluid ounces. Keep in a stoppered bottle away from the light. Pack in 4 ounce coloured bottles, fitted with rubber compound corks, and label. Add 10 drops to 1 pint of water ; stir, and allow to stand for five minutes. Then add a crystal of 'hypo' and stir. When dissolved, the water can be drunk ". The somewhat unpleasant taste of the chlorine is destroyed by the addition of the photographic " hypo ".—LT. COL. MACKENZIE, Director of Water Examination, Metropolitan Water Board.—" *The General Practitioner* "—*15th June '41.*

Few Hints — To Expectant Mothers — —

BY

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FROM the few hints given herein, I trust an expectant mother will learn quite a lot about her delicate state, and govern herself accordingly from the time she first entered into this state up to the time of child birth. Prevention is better than cure, and if she takes precautions following the advice given, she is almost certain to have an easy time and a happy maternity.

As soon as a woman knows or has reason to believe that she has entered into a delicate state, she ought to consider the momentous responsibilities involved by her bringing into existence a human being: her health, her character, in part or in full, will reflect in him her own mirror. So, as soon as she suspects her delicate state, let her try her utmost to be healthier, more pious and more enlightened than before.

I propose to give here only some hints on the health of expectant mothers as the other two conditions are out of my sphere.

Mind during the first five months.—Remember that in the case of similitude nothing is more powerful than the imagination of the mother, for if she should fix her eyes upon any object of admiration, it will so impress her mind that it oft-times so happens that the child has a representation thereof on some part of its body.

A woman, being in such a state on seeing a monkey go past her may possibly, through the force of imagination bring forth a child with a monkey's head. Cases of this kind are many. Some children are born with flat noses and wry mouths, great blubber lips and ill-shaped bodies with long hair which must be ascribed to the imagination of the mother, who has cast her eyes and mind upon some ill-shaped creature. Therefore, from the first month to the fifth, during which period the child's formation takes place, it behoves an expectant mother, if possible, to avoid such sights or at least not to give them a second's further thought. If she happens to have a dog or a cat as her only companion in the absence of her husband, it is advisable not to care too much for either. Instead, it will be advantageous for her to have as a companion a pretty child of her neighbour when, probably, she too will be endowed with a pretty child.

On no account should an expectant mother take any drug which promotes abortion, nor should she have recourse to criminal methods to bring out such a happening. If she disregards this, she will suffer not only from imminent peril of life at the time, but the almost certain penalty of chronic invalidism for the remainder of her life—profound anaemia, heart disease, tumors in the womb etc., being the usual consequences of such dangerous malpractices.

First three and the last two months.—While pregnant, a woman should have no inclination for intimacy. She ought to avoid it. It is an invariable rule in lower animals and should be so with human beings, a disregard of which is a frequent cause of miscarriage and premature birth, especially within the first three months and the last two months of the pregnancy. An eminent gynaecologist remarks that, " if any obstetric authorities give their passive or

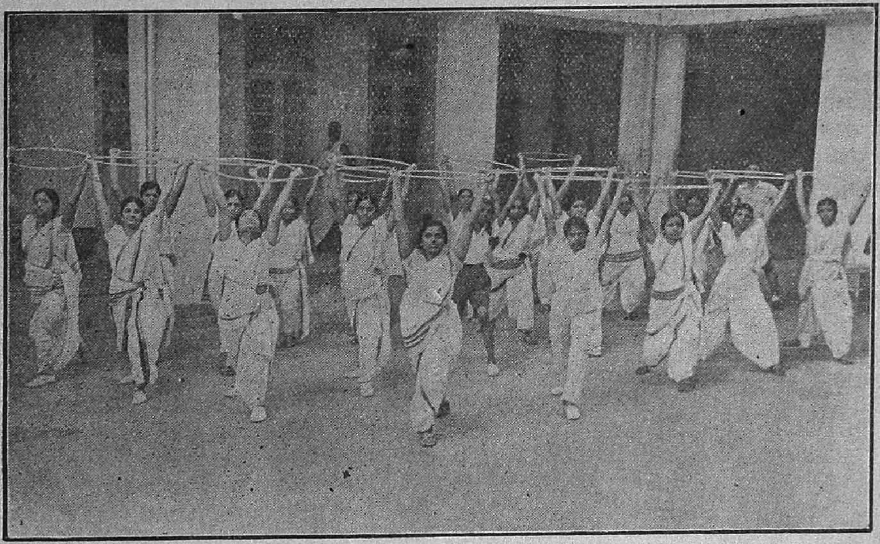
implied consent to intimacy during this period, it is like the story of Moses' concession to the hardness of human hearts.

Avoid exertion.—An expectant mother ought to abstain from all violent actions and exercises: whether she walks afoot or rides in a coach or a car, it ought to be very gentle. Cycling, dancing, travelling in trains etc., are forbidden, particularly in the first and last months of pregnancy stages. to avoid miscarriage or premature birth. All along the stages, she ought to make herself active. The habit, many women have, of sitting or lying down most of their times for several months is very injurious, as the muscles become weak while the general health is seriously impaired. Some of the easiest childbirths, we have known, were in the cases of poor women who were obliged to do their own housework and continued to do up to the very time of accouchement.

Let her avoid as much as possible fastings, thirst, watchings, mournings, sadness, anger and all other perturbations of the mind. I wish to say here a word on fasting for the reason I have above mentioned. It is, indeed, advantageous for a pregnant woman to be pious but without fasting; because, fasting will endanger the health of her offspring. Theatres and cinemas should be avoided to avert emotions and nervous disorders which are liable to lead to miscarriage or premature birth.

Let a woman in a delicate state observe a good diet, suitable to her temperament, custom, condition and quantity. Liquors are not advisable to pregnant women: taken in excess, the child to be born is liable to have serious sickness such as epilepsy, silliness and nervous disorders. Drinking of large quantities of water must be reduced from the seventh month, because from that month onwards the growth and the weight of the child felt on the bladder which is forced to be evacuated very often.

If she can, let in the air where she



Lady teachers from primary schools, performing the ring-drill exercises under the auspices of the Girgaum Viyayam Prakash Mandni, Bombay.

But expectant mothers should, however, abstain from all such violent and vigorous exercises, particularly in the first and the last months of pregnancy stages, in order to avoid miscarriage or premature birth.

ordinarily dwells be clear and well tempered and free from extremes, either of heat or cold; for by being too hot it dissipates the spirits and causes exhaustion, and by being too cold, it may develop into rheums and bronchitis and so cause her to cough, which, by its impetuous motion, forcing downwards, may make her miscarry. She ought always to avoid all nauseous and evil smells; let her also avoid smelling of rue leaves, mint, penny royal, castor, limestone, etc.

During the monsoons, where there exist lightning and thunder, it is advisable to remain in the inner-most room of the house so as to minimise the dangers to which she is exposed; otherwise, abortion, and premature birth are likely to result.

Oil Baths.—General baths (oil or simple) should be taken at least every third day, and during the last few weeks of pregnancy should be taken daily. This is most excellent means for relieving many of the local ailments from which women suffer during this period, especially those who are also subject to chronic disease of the womb. Swimming must be strictly avoided to avert possible chills; on no account should a mustard or simple warm foot-bath be taken to abate a head-cold or to induce sleep because, through the heat a more or less permanent relaxation of the blood-vessels connected with the womb takes place and a congestion of the latter may bring on miscarriage.

Before finishing, I wish to say a last word of advice to expectant mothers and their relatives.

An expectant mother, during the time of her being with child, ought to be looked upon as indisposed or sick, though in good health; for child-bearing is a form of nine months' sickness being all that time in expectation of many inconveniences which such a condition usually creates to those that are not well governed during that time: they ought, therefore, to resemble a good pilot, who, when sailing on a rough sea full of rocks, avoids and shuns the danger, if she steers with prudence, but if not she suffers shipwreck, In like manner, child-bearing is often in danger of "miscarriage" and probably losing her life, if she is not very careful to prevent those accidents to which she is exposed to all the time.

A woman during pregnancy is often in a very unnatural mental state being fretful, petulant and peevish, without anything more than an imaginary cause. She should therefore be treated with the utmost kindness and her mind should be so far as possible, diverted from the event to which she is looking forward with very great apprehension, specially if she has ever suffered a former severe accouchement.

Worry

In a paper on Psychiatry and Surgery read at the 28th Annual Clinical Congress of the American College of Surgeons, at the Waldorf-Astoria Hotel, New York in October, Dr. Franklin G. Ebaugh of the University of Colorado, said that careful analysis of a person's past and family history might show that worry, not a diseased organ, caused many symptoms. Dr. Ebaugh presented the case of a 23-year-old woman who had undergone seven operations in three years and complained of pains in the chest, loss of weight and menstrual upsets. The patient had been jobless five years and felt she was a burden to her family. Her main "treatment" consisted of depression-relieving advice, and soon afterwards she obtained a job. With the job, her symptoms disappeared. Dr. Ebaugh believes such psychiatric care might reduce the States' estimated total of 3,000,000 operations a year.—*National Health Review, Jan.'39.*

INFLUENCE OF CLIMATE

On Health and Disease

By Dr. R. Krishna Rau, F.R.C.S.E.,

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Climate and Health.—The climate of a place is the atmospheric condition, depending on its distance from the equator and the sea, its altitude, the direction of the prevailing winds and the mean temperature. There are, besides, many other obscure, occult and ill-understood factors of an electrical and magnetic nature and extra-mundane influences such as solar, lunar and sidereal. The earth has been divided by geographers into as many as twelve regions having different climates. A shorter and simpler classification of climate into tropical, temperate and polar has been given by Philips; the two former are further sub-divided by him into continental, insular and mountain. The mean temperature of the air is determined by the latitude, altitude, proportion of land and water, aspect and nature of the soil. It may be stressed that besides good soil, wholesome food, fresh air and pure water, it is the weather that moulds the life of man, that makes some people black, others tan, some tall and others short, some docile and subservient, others aggressive and overbearing, that makes the pigmy of the Belgian Congo dress in leaves, whilst the Eskimo goes in furs and friezes. It is the soil and climate that determine the distinctive attributes and characteristics of races and nations. The dark, damp, dismal and densely-wooded equatorial forests with their miasmatic exhalations are peopled by the backward, stunted and dwarfed pigmies. Living is precarious in such tracts. The Norwegians, Britons and the Japanese have developed, by reason of their environment, into great and hardy sea-faring nations. The fertile and temperate mediterranean littoral has been the home of great civilisations. A high state of prosperity and advancement is found in many monsoon lands. Man is thus a creature of environment and is controlled to a great extent by the climate and vegetation of the countries in which he lives. Healthy and fertile tracts, producing an abundance of food grains and cattle, release and emancipate man from the incessant struggle and toil of having to go about in quest of food for the appeasement of the primal instinct of hunger. The problem of food with the ancillary problem of economics is solved to a great extent by congenial climate. The quality of the food is dependent on the soil and fauna of the locality. Shortage of food consequent on drought and the failing of rains is the cause of famine with its concomitant pestilence. The agency tracts of Vizagapatam and Godaveri comprise densely wooded forests wherein the air is generally stagnant. Rain-fall is abundant. They are notorious for malaria and black water fever. Riparian tracts are hot and humid. Rajahmundry and Bezwada, situated on the banks of the Godaveri and the Krishna, are unbearable during summer. Littoral areas like Vizagapatam, Gopalpur and Puri have an equable climate. Hills are resorted to in hot weather, owing to the advantageous conditions prevailing there, such as increased sunlight, greater movement of air which is free from dust, lessened humidity, presence of ozone in small quantities and a lowered temperature. The climate is salubrious, bracing and invigorating. At high altitudes, there

is increased hæmopœiesis. Those resorting to the hills develop a bloom —a crimson on their cheeks within a few months of their stay there. There is, besides, the psychological effect of a change of scene and surroundings and of respite from the monotonous routine and regimen. Some cannot stand high altitudes owing to the extreme rarefaction and diminished atmospheric pressure. They suffer from mountain sickness, hæmorrhages and other troubles. Acclimatisation is the process by which plants and animals become remarkably adapted to withstand and resist the effects of a climate different from their own. Man is endowed with marvellous powers of adaptability to environment; but for this, conquests, colonisations, explorations and other adventures would not have been possible. According to Arnold, a race is said to be acclimatised when it preserves its natural increase of population, its normal longevity and its aptitude for physical and mental work. Indian history abounds in instances of acclimatisation of foreign immigrant settlers.

Summer.—The first half of the solar year beginning from about the middle of January till the middle of July is spoken as *Uttarayana* during which, the sun moves north to the tropic of Cancer. This is supposed to be the brighter, the better and the more auspicious half of the year, eminently suitable for the celebration of weddings and sacred rites and rituals. This is the healthier half of the year. Mortality is lower. Summer, notwithstanding the heat, is not altogether a bad season. The sun's rays have potent bactericidal properties Excessive heat is no doubt enervating, exhausting and even maddening, especially to such as are not acclimatised. Even the poikilothermic reptiles go into a state of suspended animation–astivation or summer sleep consequent on scarcity of food. The sleep comes to an end with the breaking out of monsoon rains. Other reptiles and some mammals have their winter sleep, hibernation. The human infant at birth has a mass of fat and lymphoid tissue in the posterior triangle of the neck. Hatal regards this as the representative of the interspecular hibernating gland of insectivora and cheiroptera. Birds put on a brilliant plumage during summer. The same can be said of some animals also. A rise of atmospheric temperature is associated with an increase in the prevalence of gastro-intestinal affections such as diarrhœa and dysentery. These two are related to the bionomics of the flies. The principal summer complaints are mainly of the integumentary and alimentary systems. The skin bears the brunt of the function of excretion and elimination of waste products. The kidneys are relieved of strain during summer. There appears to be a rhythmic periodicity even in the functioning of organs. The skin which is the un-invaginated nervous system and which has been described as the largest and most versatile sense organ fulfils various functions in the economy. It is a remarkably tough and highly elastic fabric, capable of withstanding heat and cold, wet and drought, acid and alkali, microboic invasion and the wear and tear of three score years and ten and even more". It is the regulator of temperature and the principal excretory organ in summer. It is credited with the production of vitamin D by irradiation with sunlight through the presence of Ergosterol in its substances. The melanin found in the malpighian layers of the epidermis protects the individual from the deleterious effects of the ultra-violet rays of the sun. It is well-known that blondes suffer far more than brunettes. Desquamation occurs to a great extent during summer. The skin becomes vulnerable to microbic and fungoid infections. Prickly heat, furuncles, carbuncles, dermatitis herpetiforms, ringworm, intertrigo etc., are the common cutaneous

astival affections. The conjuctiva which is an epithelial structure of ectodermal origin allied to the skin is again the site of inflammatory infections. This is due to the eye-fly which hovers about the face and eyes in the most annoying manner during summer. There is depletion of fluids from the system in large quantities which induces thirst. This craving accounts for the popularity of soda fountains with their stock of squashes, ales, ades creams, cordials and other iced beverages. The cheap ærated and coloured waters sold in the streets are sources of infection as impure unfiltered water is used in their manufacture. During hot weather, metabolism is decreased as there is little demand made on the heat-producing mechanism. Less solid and more liquids are required during summer. Humidity of the atmosphere in summer hinders perspiration and free evaporation. Heat stroke is common when humidity is high. Dry heat, though severe, is borne better than moist heat. The deltaic areas are as a rule hot, humid and unhealthy. From personal experience, the writer testifies to the excellence of Bellary district which is remarkably dry and is admirably suited to the convalescents. In winter, more food is necessary for stocking up the central heating apparatus. Hence, there is a craving for starch, sugar and fatty foods in cold weather.

Periodicity of epidemics.—Ancients recognised that certain infectious diseases recur at definite periods of the year. Arrhenius and Sydenham have drawn attention to the fact that contagious diseases are influenced by atmospheric (cosmic) influences. Pasteur has referred to the strengthening and weakening of virus brought on by changes in environment. Von Pettenkoper was of opinion that the cause of epidemics lay in the soil and variations in the level of sub-soil water. The quantum theory of infection postulates that all epidemical phenomena are dependent on a change in the relationship of the infection quantum and the immunity quantum. The crux of the problem lies in the determination of the factors that raise the immunity quantum. The susceptibility of the masses to infection during some parts of the year is due to extra corporeal influences to which the transmission factor is exposed. Seasonal changes of climate attended with the seasonal oscillations of temperature have a great influence on the intermediary hosts concerned in the dissemination of parasites. Insect life attains the maximum expression of prolificity in the astivo-autumnal seasons in the tropics. The chief enemies of mosquitœs are bats, birds, fishes and spiders. Their services have to be availed of for keeping the mosquito pest under control. These diminutive winged dragons are responsible for the causation of the much dreaded scourges of malaria, filaria, dengue and yellow fever. It need hardly be pointed out that certain diseases are peculiar to the tropics, whilst others are confined to the temperate zones; it has, however, to be borne in mind that modern facilities of rapid transport are potential factors in the implantation and dissemination of diseases from one part of the globe to the other. Though the parasitical diseases are relatively fewer in number in the temperate and sub-tropical zones, they tend to exhibit epidemical rather than endemical qualities. Cold and damp favour the spread of tuberculosis, rheumatic fever, measles and diphtheria. Intense cold and moist are conducive to the transmission of pneumonic plague. Bubonic plague usually breaks out during the cold season in tropical countries. Malarial epidemics are common soon after the rains. —*Extracted from 'The Antiseptic' June '41.*

VITAMIN A
IN HEALTH AND DISEASE

By

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Schell Memorial Hospital for Eyes, Vellore.

VITAMIN A is fat-soluble. It is not destroyed by ordinary cooking; but sunlight and high temperatures easily destroy it. Tamarind is a good preservative, a fact perhaps known empirically by indians and hence used widely in the South Indian cooking. It is very essential to normal growth, normal function of the eyes and for normal function and structure of the epithelial tissues all over the body. Liver is the chief storehouse and to a great extent the lungs and the kidney. With a normal intake, even after a complete removal of vitamin A from diet, it requires a considerable period of time, perhaps from four to six months, to deplete the liver of its store of vitamin A. When the diet is poor in vitamin A, the normal level cannot be maintained. The storage capacity is relatively greater at the age of most rapid growth. Vitamin A being fat-soluble, the diet should be fat-rich; but if there be too much of fat, it is likely to pass down the intestines without being absorbed in the circulation. Vitamin D also is very essential for its assimilation. What part it plays in the absorption is still a moot point. It is observed that in the absence of vitamin D, it is not absorbed. It is easily absorbed except in gross lesions of the liver and intestines. Liver plays a significant role in regulating the concentration of the vitamin through the body. Carotene is less efficient than vitamin A. Hence the preference of cod-liver oil to red palm oil though both have about the same quantity of it. If excess of it is taken, it is destroyed in the liver or oxidised in the blood stream. Excess has no bad effect on the system.

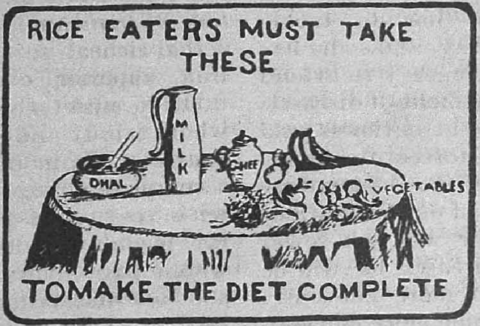
Though our knowledge at present is inadequate with regard to the physiological function of this vitamin—whether it is an integral part of the tissues or it works through blood vessels—we come to know more and more clearly what effect the absence of it has on different vital organs of the system, or on the course of certain infections. My own experience is that nutritional disorders are on the increase. Twenty years ago, working in an Out-Patient Eye-Clinic of 200 a day, I used to meet with three or four cases of keratomalacia (*i.e.*, softening of the cornea) per year. To-day, the daily attendance being the same, I meet with almost one a week. Between 1937 and 1940, I had been supplying a large number of clinical materials for one of Dr. Aykroyd's assistants to investigate into different aspects of avitaminosis on the eye. Using a photometer of his own pattern, the sensitivity to light, of the eyes of 500 school children was measured. On a subjective examination, about 5% of them were seen to be suffering from nutritional disorders as xerosis, angular conjunctivitis etc. In the dark room, about 20% of them showed a lowered dark adaptation to light – the earliest symptom of deficiency, Night-blindness is a more advanced condition.

Vitamin A is a very important chemical component of the retina which has a substance called visual purple which is very sensitive to light. This visual purple in the retinal cones is bleached to an orange pigment called visual yellow, when light strikes on it. The yellow colour gradually fades and the retina becomes colourless. If sufficient vitamin A is supplied to the retina through the blood stream, it rapidly recovers its original

appearance and function. In deficiency of vitamin A, there is delay which is measured by the photometer mentioned above.

Hence, the earliest symptom of vitamin A deficiency is hemeralopia. Even severe cases of hemeralopia may be present without any appreciable changes in the eye. The dry patch of conjunctiva, decreased secretion of tears, thickened white spot, and Bitot's spot are all the manifestations of the next stage in this deficiency. Keratomalacia is the last stage of the eye manifestations.

Dryness of the skin, loss of lustre in the face, absence of shining appearence are, perhaps, the early symptoms of this deficiency. Sometimes, there appears this shining at the time of a girl's puberty, but it rapidly disappears after the first child-birth. The sebaceous and sweat glands, hair and nails are affected—brittle and keratotic papules—goose or frog-skin—appear, over the thighs and arms more in adults than in children. The dry scaly shrivelled appearance of the skin in infants often taken to be congenital syphilis is a symptom of deficiency; or congenital syphilis has produced the deficiency. In many specific diseases as syphilis, gonorrhœa, tuberculosis, pneumonia, typhoid etc., specific treatment supplemented with the treatment of deficiency is productive of better results.



Effect of vitamin A on epithelial tissues.—As mentioned before, vitamin A is very essential for the normal function of the epithelial tissue and detailed investigation by various specialists has led to the conclusion that in the absence of vitamin A, the epithelial structure, practically all over the body, is affected, the earliest consequence being an atrophy. These are replaced by 'stratified keratinising epithelium.' As this atrophy progresses, while keeping up its normal appearance, its physiologic function and the function of covering the cell membranes are impaired. An attempt at repairing this atrophied epithelium ends in formation of the 'stratified keratinizing epithelium'—which explains the cause of several affections of the mucous membranes and diseases mentioned in this paper.

When vitamin A is supplied and absorbed by the system in adequate quantities, the cells very rapidly recover and recovery is sometimes dramatic. In keratomalacia, if Prepalin, a vitamin A concentrate is administered subcutaneously, immediately the cornea begins to melt like wax, the result is dramatic. The progress is arrested and very often the cornea is restored within three or four days.

Epithelium being the first line of defence against bacterial invasion in this new keratinized form due to lack of vitamin A, organisms easily find an entry. This deficiency has already lowered the defensive power of other lines of defence as lymph glands etc., with the result that the body is easily overcome by invading organisms. Under such changed conditions, organisms like Morax-Axenfeld, Koch-Week's, coma and dysentery bacilli multiply easily. Diseases caused by these organisms are more prevalent among the rice-eating races of India and China, rice being so low in

nutritional value and through milling there is practically no vitamin A left.

Sunlight with its abundant supply of ultra-violet rays—the precursor of vitamin D, a necessary factor in the absorption of vitamin A and calicum, is plentiful in this country. At the same time, it kills bacteria so easily. Inspite of these, people in the eastern countries are prone to all kinds of infections and their span of life is only half that in the Western countries. In addition to ill ventilated, dirty, over-crowded houses with our present knowledge of vitamins, one could easily know that this is a very important cause. Of course, economic condition is also another factor. Hence, in India, more emphasis has to be laid on preventive work. At present, every medical man has to tackle hundreds of cases a day, and so he has neither the time nor energy to attend to details in the treatment of diseases. If sufficient time and attention is paid by national health forces to tackle nutritional problems, that can reduce half the attendance of our out-patient clinics. Each doctor will get fewer but real types of diseases, he will be able to treat them more efficiently and he too will become more efficient.

In the gastro-intestinal tract, this keratinizing process reduces the mucous secretion, exposes the lining of the gastro-intestinal tract to injuries caused by friction with coarse particles of food. In South India, in spite of the fact that there are at least seven varieties of cereal grains, each superior to rice in most respects and also grown easily as dry crop, rice-eaters, because they do not get enough of vitamins in their food, develop a digestive organ which cannot stand the harder grains. So, they go in for more and more polished rice, the stomach gets more and more delicate and less of vitamins with the resultant vicious circle. An understanding of this condition has changed my attitude towards tackling these cases. I was a chronic dyspeptic for over 20 years with high acidity of the stomach. I managed to break this vicious circle with striking changes in my health. My dyspepsia has completely disappeared, and while I used to get a severe attack once in two to six months, the symptoms have disappeared for the past two years. I was not able to tolerate any rice at nights and instead, lived on bread, butter and milk. If I partook of a dinner, I could not sleep at night. Now, I stand any coarse food, all cereal grains and even chillies. At first, I introduced vitamins in the form of concentrates which did not have marked effect. Then, with a determination, I changed the food to unpolished rice and Kambu (*Pennisetum typhoideum*) bajra, sajjulu, the cereal richest in vitamin A, fat and iron, superior even to wheat. At first, it upset the digestion of the whole family. Then, gradually, in the course of six months, we introduced a complete change in the family diet with very good results. Several of my friends who had followed, among whom are several doctors, have all shown a marked improvement in their health. Some doubting Thomases remarked that it was a psychological factor. Whether the result was psychological or not, we have derived benefit. In the light of the above experience, it is worth investigating whether most of the gastric ulcers, intractable, idiopathic, chronic affections of the gastro-intestinal tract, which lead on to gastric surgery are all due to several causes attributed to them hitherto, or whether they are not simple or complicated nutritional disorders. Once a strong opponent of chillies, tamarind, betel leaves and chunam etc., now I advise people to use them freely because in the present economic condition of the country, they are the major source of nutrition to most of the poor people.—*Extracted from 'The Antiseptic' Aug. '41.*

Teeth in Relation to Health

By
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A GOOD set of teeth is indispensable for health. Unless food is chewed so that it becomes soft, the stomach will not be able to digest it. The digestion begins in the mouth. The digestion of the carbohydrates, one of the three most important food factors, starts when it gets mixed with saliva in the mouth. This mixing of saliva is only possible when the food is thoroughly masticated. Nature has provided only liquid nourishment for babies as they have no teeth and cannot masticate solidfood. Again, it is a thing of every-day observation that the old people, whose teeth have fallen out, suffer from indigestion in one form or another. It is surprising how these very people, when provided with a good set of artificial teeth, regain their powers of digestion. The importance of the teeth for the maintenance of good health cannot be over-emphasised and, therefore, it becomes the duty of every individual anxious to live a healthy life to take good care of his teeth.

Fortunately, Indians as a whole have better sets of teeth than many of the other nations of the world. But, the rapid changes in the habits and diet of the Indians are likely in the future to affect the teeth as has been the case with other nations of the world living modernised lives. It is therefore necessary to lay stress on a well-balanced diet containing materials which the body requires for the formation of the teeth or for their maintenance in a good and healthy condition. The substances are calcium and vitamins. If the nourishment of babies lacks in these substances, the development of the teeth becomes defective or delayed. In rickets (which is due to the absence of the fat-soluble vitamin D found in milk, butter, etc., and particularly in fish oil) the teeth are late in coming out. In scurvy, a disease due to vitamin C deficiency, the gums become soft and swollen, and bleed easily while the teeth show structural degeneration and become shaky. Absence of calcium and vitamin D interfere with the proper calcification of the teeth as it does with that of other bony structures.

Apart from the deficiency diseases referred to above, the diseases of the teeth are mainly due to lack of cleanliness. Most of us clean the mouth

early in the morning, but generally neglect it after meals. The particles of diet get in between the teeth or between the gums and teeth, and lie there to decompose. These decomposing particles of diet become the nidus for the growth of germs which, after some time, produce pyorrhoea and other inflammatory diseases. It is necessary to remove the particles by proper cleaning which consists in removing them with a tooth brush or a datoon, and gargling subsequently. The index finger can be gently passed over the gums, pressing out all that has got under their margins, and afterwards the mouth should be washed out with clean water or with normal salt solution which is prepared by adding and dissolving one teaspoonful of ordinary *table salt to one pint of water. Some* people rub any powder, e.g. charcoal powder, over the teeth and the glossy appearance of the surfaces of the teeth satisfies them. It is wrong. Effort must be made to clean the crevices and the spaces in between the teeth, and this cannot be done with the finger. Only a good tooth brush or a datoon, properly used,alone can achieve this object. If a datoon is used, it should be changed daily and a tooth brush should be cleaned after use. Artificial teeth must be kept scrupulously clean and at night should be removed and kept in a mild antiseptic lotion e.g., of Pot. Permanganate.When Pyorrhoea develops or one suffers from other diseases of the teeth, expert medical opinion must be obtained. Pyorrhoea can be the cause of ill health by the absorption of poisonous substances from the inflamed gums into the circulation, making the sufferer prone to joint trouble, skin diseases, anæmia etc. The pus getting down constantly into the stomach brings about gastric and other digestive derangements.

Vitamin D neutralises the deleterious effect on the teeth of cereals, specially oatmeal, and promotes calcification, while a substance present in cereals hinders it. Abundance of vitamin D in food thus prevents and its deficiency,particularly if associated *with insufficiency of calcium, produces* dental caries. The pain in the teeth, sepsis of the mouth, and alveolar abscess owe their origin to this disease. The glands in the neck become enlarged and can, at a later date, become the seat of tubercular infection. Oral sepsis can be the cause of pharyngitis and tonsilltis and inhalation of septic material into the lungs may lead to bronchitis and other affections of the lungs. Persons suffering from oral sepsis are liable to stomatitis. Thus, oral sepsis can be a potent cause of ill health and disease. One, therefore. cannot afford to neglect teeth except at the cost of his health.

FEEDING THE SKIN

LADIES, PLEASE TAKE NOTICE

BY DR. H. C. MENKEL.

BOTH men and women are largely dependent upon the skin for appearance and health. While appearance and skin beauty appeal to the ladies more than the men, all are equally dependent upon skin functioning for health and general efficiency. We have heard so much about the heart, lungs, kidneys, nerves, and, more lately, endocrine glands, that we have almost forgotten the skin as coming into the picture, except as a convenient, yet sometimes very troublesome and expensive, covering of the body.

For the purpose of this article, it will suffice to state that the skin is quite closely related both in resemblance and in function to the kidneys and the lungs. It also breathes as do the lungs. Still further, it is perhaps the most important channel for

conveying sunlight to the blood stream. It is for this latter reason that one's skin, in part or in whole, should frequently be exposed to the sunlight: however, at the beginning, only for very short periods of time.

First of all, it is necessary to remind ourselves that the skin, like all other organs and structures, is built, or, more correctly, grown from the food we eat. Like all other parts of the body, the tissues and cells composing the skin have a very short span of life. The skin you see and feel today is not the same skin you saw and cared for last year. The old has gone, and new skin has grown into its place all over the body surface. This growth goes on constantly. The new skin is composed of certain food materials you have been eating. It is simply converted food.

Quite recently, we have learned that there is one element in normal food which is indispensable to normal health of the skin. The food factor is the yellow colouring pigment called carotene, so abundantly supplied in vegetables and fruits. This name was given because it was first identified with the yellow colouring matter of the carrot. However, it is not limited to carrots, but is present in nearly all yellow and green leafy foods.

A deficiency of this yellow carotene in one's daily food results in certain changes in both the outer skin and the inner mucous membrane lining all such organs as nose, throat, mouth, lungs, digestive organs, bowels, kidneys and glands.

This yellow carotene is the basic substance from which the body tissues, and particularly the liver, make and store vitamin A. In other words, the now famous vitamin A is nothing else than the final stage of yellow carotene fulfilling its nutritional objective.

The yellow food pigment and its final stage, vitamin A, has various functions to its credit, but we shall here confine our considerations to the role it occupies in maintaining a healthy skin. It must be remembered that green chlorophyl, as found in green leafy vegetables, contains a considerable percentage of yellow carotene. Therefore, green leafy vegetables are classed as a good source of vitamin A.

A diet low in foods supplying carotene will result in certain degenerative tissue changes called "keratinizing metaplasia." In non-medical language, this means gradually changing into dry, horny, scaly tissues. Such changes are characteristic of dry, scaly skin, nails and hair. The writer has seen persons from whom the skin peeled off in huge, dry masses of scales, while in others it became parchment-like, giving off small, dry scales. Warts, pimples, skin infections, eczema, psoriasis, dry falling hair, and other developments may be due to a dislike for spinach, lettuce, carrots, fruits, and other carotene-containing foods. We seem to require a considerable quantity of this substance.

Perhaps these details are sufficient to emphasize that no amount of so-called skin-food lotions or creams applied externally can re-place Nature's own skin-food as represented in the yellow carotene. To improve both internal and external skin texture, and at the same time provide for other vitamin A benefits,not mentioned in this article, you should become an enthusiast about carotene-containing foods. Eat much more green and yellow foods, and watch your skin grow lovely.—*The Oriental Watchman.*

EFFECTS OF HIGH ALTITUDE FLYING

By

CAPT. HARRY G. ARMSTRONG, M.C., U.S. Army.

and

J. W. HEIM, PH.D.,

THE current medical problems of high altitude flying depend principally on the altitude attained. As a consequence, the problems of commercial air transport operations are fewer and less serious than those in military aviations since the former is limited by federal regulation to 18,000 feet. In either instance, all the deleterious effects of altitude flying are brought about by the decrease in atmospheric temperature and pressure with ascent.

During ascent to high altitude, there is a point at which breathing becomes altered. This varies in different individuals, but it has been noted as low as 4,000 feet. At about 12,000 feet altitude, the increased depth in breathing amounts to between 20 and 100 per cent. increase in lung ventilation.

Death from altitude sickness in the normal organism is probably always due to a failure of the respiratory centre. This may occur at different altitudes, depending on the duration of exposure. It is believed that an ascent to about 16,000 feet might eventually prove fatal in some cases. Above this altitude, the exposure period necessary to produce death is progressively shortened, such that at 25,000 feet altitude and above, death may occur at any time after 20 to 30 minutes.

The effect of altitude on the heart is not, as many persons believe, due principally to the increased load but almost entirely to the lack of oxygen supply to the heart muscle. While it is true that the pulse rate increases and that in some cases the blood pressure rises, these changes are no more noticeable than would be seen in mild exercise. The effect of anoxia on the heart muscle is the same as that for any other tissue and the heart will continue to function long after the respiratory centres have become paralyzed.

With reference to the problem of flight with an abnormal heart, we know from the experimental results that anoxia has a detrimental effect. The seriousness of the effect is proportional not only to the altitude and the duration of exposure but also to the amount of cardiac impairment. The type of heart lesion does not seem to be as important as the amount of cardiac reserve, nor does the increased demand on the heart seem to be as important as the effect of anoxia on the heart muscle.

At altitudes of about 14,000 feet and above, there is a progressive deterioration of voluntary muscular control. The first sign to appear in inco-ordination of the finer muscular movements, followed by slowing of movements, tremor, and finally paralysis.

Most recent writers agree that there are no significant psychologic changes from anoxia even during prolonged flights at altitudes below 9,000 feet. Above this altitude, however, psychologic changes begin to appear, and the degree of change is in proportion to both the altitude and the duration of exposure. These effects consist of a slight decrease in immediate memory and the onset of psychologic complaints. At about 14,000 feet altitude, handwriting begins to become impaired, and there may be a change in moods, more or less characteristic in each individual; there may be sleepiness, lack of volition, and lethargy, or there may be a temporary stimulation with euphoria.

At about 18,000 feet, the effects become much more pronounced. At this point, in addition to a definite decrease of sensory perception, the impairment of neuromuscular control is quite marked, the field of attention is narrowed, and the higher mental processes are affected, as indicated by the loss of memory, the development of irrational or fixed ideas, and the loss of sound judgment and self-criticism.

The after effects may be very severe. This appears to be due to the fact that the sensory functions of the body return to normal almost immediately upon returning to low altitude, while the other general systemic effects tend to persist for some time afterwards provided the anoxia has been very severe, or even in mild cases if it has been prolonged.

Probably, the most frequent difficulty experienced by passengers and pilots in flight is with reference to the middle ear. If, for any reason, the eustachian tube is stenosed, which may occur even from a mild coryza or pharyngitis, the middle ear cannot be ventilated and a marked change of altitude may then rupture the cardrum.

A like condition occurs with reference to the sinuses when their openings are blocked, in which case, during a change of altitude, marked trauma and severe pain may develop.

Another condition which may occur is abdominal distention, since the gastro-intestinal gases expand in direct proportion to the decrease of atmospheric pressure during ascent.

Since the above-mentioned effects may occur in normal individuals, it is obvious that those suffering from various pathologic states may be even more adversely affected.

An additional pathologic state which may arise in high altitude flight is aero-embolism, a clinical condition in aviation corresponding to compressed air illness in deep sea diving.

During ascent in aircraft, the internal partial pressure of the body nitrogen is above that of the nitrogen in the lungs, and the tissues are, therefore, super-saturated. If the ascent is slow enough so that the nitrogen in the body can be eliminated and not reach approximately double its normal saturation at the prevailing altitude, nothing unusual will occur. If, on the other hand, concentration of nitrogen in the body becomes more than double its normal saturation value at any altitude pressure, the nitrogen gas will come out of solution and form bubbles to which is added some oxygen, carbon di-oxide. and water vapour from the surrounding blood and tissues.

The symptoms of aero-embolism are identical with those of compressed air illness and consist principally of joint pains, paralysis, paresis, hyperaesthesia, embolism, pulmonary œdema, and formication, neurodermatitis, or pruritus of the skin.

The treatment, of course, is the returning of the patient to a region of higher atmospheric pressure, which, in the case of high altitude flight, simply involves a return to lower altitudes.

In addition to active treatment there is a prophylactic measure available which may be utilized. This consists of the inhalation of pure oxygen for one-half to one hour before ascent. This eliminates most of the nitorgen from the body, and hence the cause of the disease.

The cold of the high altitude can be controlled by closing and heating cabins; altitude sickness can be controlled upto 33,000 feet by the breathing of oxygen, and attacks of aero-embolism can also be controlled by the breathing of oxygen. A new method of controlling these problems, together with all other clinical entities peculiar to high altitude flight, has recently reached the stage of practical development. This involves the views of a pressure cabin.

Based on present trends, it is believed that transcontinental and trans-oceanic aircraft will practically all be of the pressure-cabin type, within the next five to eight years, and that within ten to twelve years practically all transport lines will operate pressure cabins exclusively. This latter is based on the fact that the ear and sinus problems in passengers will always be with us at high or low altitudes until the pressure of the cabin is controlled within a very narrow range.—*Journal of Laboratory and Clinical Medicine, Oct. 26, '40.—The General Practitioner, June 15, 41.*

Topics from Medical and Health Periodicals

Emotions and ill Health

IT is common knowledge that much ill health has its origin in mental and emotional causes. This is especially true of digestive complaints. In several series of such cases it was found that from sixty to seventy per cent were due to what are termed personality factors. A study of fifty consecutive patients at the Johns Hopkins Hosptial has been made by Dr. G. Canby Robinson, the results appearing in the *Bulletin* of that institution.

Only thirteen had troubles originating in the intestinal tract, four suffering from faulty diet, two from alcoholism and one from excessive use of laxatives. Thirty-three had personality disorders without evidence of disease and four had had stomach ulcers which were attributed to emotional strain. The stories told by these thirty-seven individuals covered a wide range. Many had had several disturbing factors in their lives. Financial insecurity during the financial depression was often mentioned. Family relationships frequently brought on indigestion or constipation.

Of the thirty-seven, twenty-three patients responded to wholesome advice from the physician, usually after several consultations. Where the evil situation could be remedied, efforts were directed toward that course. Where it could not be, the individual was told that by proper adjustment and mental attitude, the strain could be met.

Cod-Liver Oil as a Dressing

THE successful use of pure cod-liver oil in the treatment of burns and scalds, varicose ulcers, diabetic and senile gangrene, amputation stumps and carbuncles is recorded by J.P. Steel (*Journal of the Industrial Welfare Society*, March 1941, 23, 56). Before reporting the results obtained, the author lays special emphasis on the need for the use of *pure* cod-liver oil. i.e. a medicinal oil " guaranteed to be pure cod-liver oil from which no constituent has been removed and to which nothing has been added. " The results were checked by photograph and clinical observation and compared with control cases treated with tannic acid, acriflavine and dyes. The method of applying the oil is easy; it is poured on the wound and covering applied, the dressing being kept moist with oil without removing it for each application. Dialy changing of the dressing was carried out and this was found to be less painful than with other dressings. The advantages claimed include (1) prompt relief of pain—this was marked in the treatment of burns—with consequent lessening of shock and a minimum of pain when re-dressing was carried out; (2) healthy granulation, and (3) reduction of scarring. The last was particularly marked in burns of the conjunctiva caused by acids. When the dressings are first removed what appears to be pure pus is noted. This quickly decreases, and below the healthy granulations will be seen. The use of cod-liver oil on frost-bitten feet resulted in immediate alleviation of the pain and in the treatment of carbuncle once the lesion is open the dressings have a soothing effect, help the discharge of pus, and lead to rapid healing of the wound. In conclusion it is stated that apart from the vitamin A and D content of cod-liver oil, which has a specific action on epithelial tissue, some other agent must be present, as a combination of A and D in Arachis oil gave less satisfactory results in spite of ultra-violet irradiation. It is of interest to note that latent sepsis was absent in treated cases.—*Antiseptic Aug, 41.*

Ford Predicts a Vegetarian World

HENRY FORD, like many other wise men peering into the future, clearly recognizes the fact that the laws of economics will in the course of time compel the abandonment of meat as human food. This will be a necessary result from the fact that the food-producting areas of the world are limited and through soil erosion and climatic changes steadily diminishing, while the population is increasing faster than over before in the history of the world.

This is true notwithstanding the fact that in civilized countries, at least, the birth rate is diminishing, but this cause of lessend increase in the growth of the world's population is more than equalled by the increase in the average length of life through the lessened frequency of wars and devastating plagues.

The following report of an interview with Mr. Ford on this subject recently appeared in the daily press :

" Eventual decline of the farm animal population as a source of food and the substitution of grains and other crops for human sustenance

was envisioned today by Henry Ford, billionaire motor car manufacturer.

"To newspapermen assembled to witness the starting of Ford's new $ 4,600,000 turbine generator at his mammoth plant, he predicted that this growth of produce at the expense of livestock will result in 'great improvement to the farms.'

"The farm animal will go but the farm will become larger,' the 73-year-old motor car manufacturer said. The horse is dying out through the increased use of machines. The cow is losing its economic importance to the great advances in chemistry.

"The farmer of the future will develop grains and vegetables instead of livestock."

A non-flesh diet is by no means new to Mr. Ford. For many years he has been practically a vegetarian, and perhaps owes to this fact his ability to maintain the health and vigor necessary to successfully conduct the gigantic industries which his remarkable genius has created.

The Chemical Composition of Vegetable Foods and Their Place in Peace-time and War-time Diets

VEGETABLES are primarily useful in the diet as protective foods. Besides providing vitamins A, B_1 and C, they contain significant amounts of calcium and iron. If the commoner vegetables are ranged in order of the proportion of the 24 hours' requirement of vitamins A, B_1 and C, iron and calcium, which they provide in a 4 ounce portion, they fall into the following series: At the head is broccoli leaves; a 4 ounce portion of boiled broccoli provides about 35 hours' supply of vitamin A, 24 hours' supply of vitamin C, 3 hours' supply of iron and 4½ hours' supply of calcium. This vegetable is followed by watercress, mustard and cress and brussels-sprouts. A 4 ounce portion of boiled brussels-sprouts provides an average amount of 9 hours' supply of vitamin A, 36 hours' supply of vitamin C and 1 hour's supply, or a 24th of the daily requirement of vitamin B_1, iron and calcium. Next comes spinach, which is also a valuable food. The high proportion of oxalate present in spinach apparently renders the bulk of the calcium present in it unavailable to the body, although this question has not yet been finally solved. Following these first five vegetables comes boiled cabbage. Cabbage, while supplying about 21 hours' requirement of vitamin C in a 4 ounce portion, rates lower than the leaders in possessing no more than 5 hours' requirement of vitamin A; this is due to the fact that the leaves of cabbage usually eaten are paler in colour than the higher ranking greens such as broccoli or spinach. Greenness in colour appears to be associated with richness in vitamin A. Next in order of merit come tomatoes, cauliflower, lettuce, turnips and carrot. Tomatoes are comparatively rich in vitamin A. Cauliflower, while almost deficient in vitamin A, contains substantial amounts of vitamin C. Carrots are comparatively low in the list. While 4 ounces of boiled carrot may provide 8½ hours' supply of vitamin A, it only contains 1 hours' supply of vitamin C. The better green vegetables seem to be in every way preferable to carrots as protective foods. Lowest in the list, in the following order, come green peas, radish, leeks, parsnips, runner beans and onions.

If vegetables are compared in this manner with fruits as protective foods, the vegetables easily predominate. The leading fruits which are blackcurrant, strawberry, orange, gooseberry lemon, provide substantial amounts of vitamin C, but as a general rule they do not contain more than a fraction of the vitamin A, iron and calcium also present in vegetables. Also, the bulk of the fruits, raspberry, grape-fruit, pineapple, banana, plum and particularly apple, contain, weight for weight, very much less vitamin C than vegetables. Vegetables, in fact, compare favourably in vitamin A, vitamin C, iron and calcium with protective foods of other classes. While liver stands alone in the amount of vitamin A and iron which it provides, and cheese contains very large amounts of calcium, egg, butter and herring could all be replaced as protective foods by vegetables if vitamin D were obtained elsewhere.—DR. MAGNUS PYKE.—*Medical World.*

Walking, its Striking Statistics

WILLIAM J. Cornic once advising a man on a mild form of exercise said that "Walking is the best exercise that has the least danger and that alone suits the young and the old alike" And he added:—"The normal heart beats about seventy two times each minute, and pumps about six ounces of blood with each beat. In one minute the heart pumps 432 ounces or 25,920 ounces of blood per hour, which is 1,620 pounds.

"Now in fast walking, or at the rate of four miles an hour, a normal heart will increase its beat ten to the minute. Pumping six ounces of blood at each beat gives 60 ounces per minute or 3,600 an hour, which is 225 pounds. These additional pounds of blood pumped daily through your veins and arteries means just that much more life."

"The normal person breathes about fifteen times each minute, and inhales at each inspiration 23 cubic inches of air. This would amount to 345 cubic inches an hour, which is a little over eleven cubic feet. In an hour's walk the breath is more than doubled in volume, while in fast vigorous walking it is increased seven to nine times"

"In an hour's walk the breathing is only doubled; this would one additional eleven cubic feet of air. Out in the open, where the air is pure, have an excellent air bath."

"One averages about 28 inches to the stride 2,263 steps to the mile. The arms swinging at the sides would make about the same number of 4,526. Multiplying this sum by 200 muscles which are brought into more or less action with each stride one performs over 900,000 muscle movements"

"Walking is an excellent agent for the elimination of waste products. In the course of an hour one perspires about one and two-third ounces. In fast walking one perspires many times that amount and this, then

becomes effective in throwing of accumulated waste matter from the system."

"Walking is one of the cheap luxuries of life, as free to the poor as to the rich."

"Indigestion, constipation and sleeplessness would never overtake a good walker."

All this is true only when the feet are clad in satisfactory shoes.—*The New Health.*

A Diabetic Walks to His Grave

A DIABETIC should give even more attention to his feet than to his face. Before going to bed he should soak his feet in a basin of warm soapy water for five minutes. The feet should be thoroughly dried especially in the interdigital spaces. Following this the feet should be massaged with alcohol and then followed by a massage with wool fat (lanolin).

On the sole of the foot the diabetic is apt to develop calluses. If not infected, simple massage with lanolin will suffice to soften the callus and will cause it to disappear eventually. If serum collects underneath a callus, the callus should be cut away and a mild antiseptic dressing applied. Perforating ulcers of the foot are as common in the diabetic as in locomotor ataxia.

Trichophytosis is a fungus infection which is very common in diabetics. The skin of diabetic is very vulnerable to infection judging by the frequency of furuncles and carbuncles. The skin of a diabetic is usually dry and harsh, hence lanolin is an excellent "skin food."

The diabetic should pay particular attention to the toe nails. Regular trips to the chiropodist are advised. Many patients infect themselves when trimming their own nails. Shoes purchased shall fit the feet, not the eyes! Improper footwear is the greatest predisposing cause of infection.

When infection is superimposed upon a foot the circulation in which is already impoverished by sclerotic changes in the blood vessels supplying the limb, it will be an invitation to gangrene. Gangrene may follow even trivial trauma or it may occur spontaneously preceded by neuralgic pains and by violet discoloration of the skin. Numbness and tingling of the feet are common symptoms of diabetic neuritis.

Skin Eruption Due to Rubber Sponge Powder Puff

A RUBBER sponge powder puff was finally found to be the cause of an intese dermatitis (skin inflammation) after tests of the patient's cosmetic preparations had given negative results, Lester Hollander, M. D., Pittsbrugh, reports in *The Journal of the American Association* for December 28. This is the first such case to be reported in medical literature, he says.

The patient had an eruption involving the nose, the upper lip and the adjacent portion of the right lower eyelid. The eruption was of about four months' duration and was exceedingly itchy.

The patient was instructed to stop the use of her cosmetics, soap, handkerchiefs and cleansing tissues for two weeks. At the end of that time her face was practically clear, but patch tests for these substances were negative. Later, in obtaining samples for additional patch tests, Dr. Hollander learned that she had bought a rubber sponge powder puff shortly before the original onset of the eruption, and that she used the puff only when away from her home. The outline of the eruption was confined to the area of its use.—*Texas State Journal of Medicine, Feb. 1941.*

Attend to your Health

WRITING under the heading "Are you a wartime asset or liability", Harry Benjamin, M.A., A.N., writes, "The great majority of people never pay any attention to their health until they feel that it is deserting them; then they go to the doctor for a bottle of medicine, or try one or more of the many "tonics". They do not realise that the cause of their failing health lies in their habits of living and environment. As these factors persist while the medicine or "tonic" is being taken, it stands to reason that the help that medicine can give, if any, is only of a temporary nature. Many medicines or "tonics" so-called, are actually harmful in their effect upon the system, but, even if not actually detrimental, how can they be expected to restore health while the causes that have undermined health are still in operation? Yet these medicine-taking people expect health to be restored by medicine and so are mystified and disappointed when it fails in its task!

The logical way in which to restore health or prevent it from deteriorating, is to see that no factor is allowed to operate which tends to undermine the healthful functioning of the body and all its parts. That is precisely the attitude adopted by those persons who have espoused the precepts of Nature Cure. Nothing could be more sane and sensible and, of course, nothing gives such satisfacory results".

After dealing with more efforts to maintain health under Wartime conditions than under normal circumstances, the writer makes a few suggestions to help readers to overcome war time obstacles to health, one of which is conservation of vitality. On this he writes:

"People imagine that energy or vitality, (the terms are interchangeable) comes from food. The medical profession has told them so, and so has "Science", under the mistaken idea that energy as derived from the machine can be derived from the body in the same way. But the body, although the most perfect of the machines, is not in the least like a machine as regards the generation of energy from materials supplied to it from outside itself. Its energy is *self-generated* and comes from the same source as *life-itself*, and is indeed synonymous with it in many respects. We are born with our energy-potential already within us and as our energy accumulates within the central ganglia of the autonomic nervous system (i.e. Solar plerus), and it is discharged through the medium of our muscles and

nerves as required, with the aid of the nutritional and other necessary elements furnished by our food".

"Food supplies the muscles and nerves with the means for *expending energy*, but does not *create* this energy. Otherwise, if food were the sole medium through which energy were generated, it would stand to reason that the person who ate most would have most energy which is demonstrably false. We need food to keep the body working and make it possible for us to utilise our energy-potential to the utmost, as first made clear ; but, beyond that, food taken unintelligently can retard rather than assist us in the development of our vital powers".

"Energy" he continues, "can not be restored to a flagging system by the use of stimulants, whether in the shape of tea, coffee, alcohol, or medicinal drugs. These things may *seem* to impart energy to the system, but in reality, they take it away ! For the seeming increase produced is only achieved by the further depletion of the system's vital reserves. We can make a tired horse go faster for a whiie by giving it a stimulant, the spur; but this only brings about eventual collapse all the more readily. The only way by which depleted vital power (or energy) can be recuperated is by rest and sleep: not by stimulation."

He then points out how vitality is wasted, saying, "Keeping late hours, gossiping at considerable length, trying to do the work of the day in too great a hurry or trying to do two days' work in one, immoderate smoking and drinking, excessive tea-drinking, the constant eating of confectionery or other things between meals, inadequate provision for rest and sleep as well as excesses and abuses of all kinds are the usual means whereby, vitality (or energy) is wasted by those who wonder why they are not feeling fit as they out to be or would like to be."

The writer then proceeds to advise the readers to take walking exercise in open air and cultivate a spirit of mental confidence. Advising about colds, flu, etc., he writes: "With regard to the cure of ailments such as we have been referring to, the simple Nature Cure expedient of *fasting* is the only cure and radical cure. Rest, abstinence from food, with a daily enema while fasting to cleanse the bowels, are the surest therapeutic agents for the curing of any cold, attack of 'flu or any infectious disease, no matter how virulent. The best way to prevent these conditions occurring, however, is to live as we have directed herein, for, by conserving health, you automatically prevent disease."—*Health for All.*

The Need for Better Nutrition During Pregnancy and Lactation

By B. S. Burke., Jour. Amer. Dietetic Assoc. 17:103, 1941.

It is an accepted fact that although pregnancy and lactation are considered normal physiologic states, each makes increased nutritional demands upon the mother. It is also an admitted fact that digestion and absorption from the intestinal tract are often impaired in pregnancy. Thus increased nutritional needs together with a digestive system which functions below par, make careful attention to the diet at this time doubly important. The demands of the baby and the altered maternal metabolism during pregnancy and lactation result in such changes in the nutritional requirments of the mother that helpful guidance in her food habits throughout these periods is extremely important, if optimal nutrition is the desired goal. It is, therefore, very important to consider seriously the means by which additional educational work may be accomplished during both the prenatal and the nursing periods so that more nearly optimal diets may become the rule rather than the exception in these periods.

The following requirement is recommended by the author as a guide to the optimal daily nutritional requirements for the average normal woman from the fourth month to the end of pregnancy, assuming the changes during the first trimester to be so small as to be negligible.

Optimal Daily Nutritional Requirement in Pregnancy and Lactation.

	Pregnancy (4th through 9th month)	Lactation
Calories * ...	2700	3000
Protein ...	100 gm. (1.5-2 gm. per kg.)	125 gm. (2 gm. per kg.)
Calcium ...	1.5 gm:	2.0 gm.
Phosphorus ...	2.0 gm.	2+ gm.
Iron ...	20 mg.	15-18 mg.
Vitamin A ...	9000 I.U.	9000 I.U.
Thiamin ...	2 mg.	2 mg.
Ascorbic Acid	100 mg.	100 mg.
Vitamin D ...	600-800 I.U.	600-800 I.U.
Riboflavin ...	?	?
Nicotinic Acid	?	?

* Energy requirements vary with activity, etc.

—*The Journal of Philippine Medical Association, May '41.*

Home Remedies

Diarrhœa

THE motion of the bowels is a symptom of many diseases. Very often it rises from an error in diet and must be regarded as an effort of nature causing the bowels to throw off the offending matter. Such matter is usually unripe fruit, badly cooked vegetables, shell-fish and other indigestible food. When diarrhoea is due to indigestion it is Nature's remedy to free the bowels off the substances which are irritating them and often no medical treatment is required. Usually a few doses of carminative mixtures will stop the diarrhoea or a tablespoonful of castor oil will be very useful. Even after these if the diarrhoea continues give about 10 to 20 drops of chlorodyne in an ounce of water failing which, send for the doctor.

* * *

Diphtheria

DIPHTHERIA is an infectious disease causing sore throat with membranous exudation and great depression Symptoms are slight sore throat, cough, enlargement of the glands the neck and a little feverishness. The patient feels drowsy, wanting energy, loss of appetite or diarrhoea. The weakness gradually increases and the voice becomes hoarse or if the throat is examined it is now found to be red with adherent patches of yellowish white colour on the tonsils and some other part. Breathing becomes increasingly difficult. The safest thing is to consult a doctor at once without any further delay.

* * *

Dropsy

ACCUMULATION of watery fluid in the tissues of kelvis of the body. It is generally caused by diseases of the heart, lungs, liver or kidneys. Consult a doctor. Until the doctor is obtained keep the patient in bed, open the bowels if they are confined and give easily digestible food such as barley water and milk or soda and milk.

* * *

Drowning

IN this accident send immediately for the doctor but lose no time in restoring the breathing. To clear the throat and stomach place the patient on the floor or ground with face downwards and one arm under the forehead wiping away all froth of foreign bodies from the mouth. Remove all tight clothing from the neck or chest. Strip the body to the waist and expose face, neck and chest to the wind. Make a roll of the clothes; place against it to expel the water that has been swallowed. If the breathing is still feeble or absent try artificial respiration. Place the patient on his back on a flat surface, raise and support the head and shoulders by the roll of clothes or a pillow under the shoulder blades. Draw forward the patient's tongue and heep it projecting beyond the lips fixing it by a piece of stout string or tape under the chin. The neck should be well extended and the head turned a little on one side. Then standing at the patient's head grasp the arm just above the elbow. Draw the arms gently and steadily upwards for two seconds This opens the chest. Then turn down the patient's arms, press them gently end firmly for two seconds against the sides of the chest so as to press the air out of the lungs. Repeat these movements about 15 times a minute and continue until natural breathing is established or till the doctor arrives.

* * *

Dysentery

SYMPTOMS. After a few days of digestive disorder with furred tongue, loss of appetite, dry skin and feverishness, diarrhoea comes on together with griping pain and tenderness in the course of the large bowels. The motions are at first composed of faecal matter but soon consist of blood-stained mucus and later on may be offensive and like the washings of meat. The bowels act very frequently with straining so that the sufferer scarcely dares leave the latrine.

Treatment:—Start the treatment by taking a good dose of castor oil. Keep in bed and take no food or drink for 3 hours. If the purging continues, take 5 grains of Dover's powder with 10 grains of bismuth. These powders to be taken every 3 hours. If it does not relieve, consult the doctor.

* * *

Ear Discharge

RUNNING from the ear often arises from irritation by ear scoops and other articles. Sometimes beads are pushed into the ear by children and the efforts to remove them injures the skin or drumhead. Fungi are apt to grow on these sore patches causing still more swelling and inflammation. After measles and other fevers this is specially likely to happen. Discharge also may follow the bursting of small boils and abscesses.

Treatment:—Drop in a few drops of Hydrogen peroxide solution. Clean the ear again. Drop 5 drops more of the Hydrogen peroxide solution and put in a plug of cotton. If not better, consult a doctor.

* * *

Ear-Foreign Bodies in Children

CHILDREN sometimes poke beads or bits of slate pencils into the ear. In such a case, the ear should be gently syringed with warm water until it comes out. On no account attempt be made to draw it out or scoop it out as they would probably drive it further in and injure the drum. Where the foreign body is of a vegetable nature and liable to swell with moisture such as pea or a bean, the syringe should not be used but a competent doctor should be consulted. Insects sometimes get into the ear and cause much pain and discomfort. The best thing would be by filling the ear with warm water or warm glycerine. This first kills the insect and then floats them out.